

SUZUKI

Vitara 1.6 litre From August 1991

The Suzuki 16 valve G16B four cylinder engine features multipoint fuel injection and ignition control.

Early models employ a mechanical type air flow meter using a moving inner core acting on a potentiometer. The air flow meter also houses the intake air temperature sensor. On late models, a hot wire air flow sensor measures the incoming air flow. On some models, a separate intake air temperature sensor is mounted to the top cover of the air cleaner housing. Exhaust gases are monitored by an oxygen sensor, which is heated on some models. Injectors are operated simultaneously on early models, and sequentially on late models.

Idle speed is controlled by an idle speed control valve. Idle speed is increased when the engine is cold by a thermowax device (fast idle control valve) allowing extra air to bypass the throttle plate.

The ECU is located behind the dashboard on the driver side of the vehicle. The diagnosis connector is located in the engine compartment, adjacent to the driver side suspension unit. A second diagnosis connector is located adjacent to the ECU and is used for manufacturers dedicated test equipment.

In the following text and illustrations, models with a mechanical air flow meter will be referred to as early models. Late models are fitted with a hot wire air flow sensor. Some late model vehicles are fitted with a combined coil and distributor assembly. Due to the unavailability of Specifications from the manufacturer, these models are not covered.

SPECIFICATIONS

Firing order	1 - 3 - 4 - 2
Idle speed	800 ± 50 rpm with ISC duty cycle at 50%
Ignition timing	5° ± 1° BTDC
Spark plugs:	
Type	NGK BKR 6E or BK 6E
Gap	0.7 - 0.8 mm
Ignition coil resistance at 20°C:	
Early models —	
Primary	0.9 - 1.1 Ω
Secondary	10.2 - 13.8 Ω
Late models —	
Primary	1.08 - 1.32 Ω
Secondary	22.1 - 29.9 Ω
Distributor rotor air gap (early models)	0.2 - 0.3 mm
Pickup coil resistance (early models) at 20°C	140 - 180 Ω

High tension lead resistance	10 - 22 kΩ per meter
Fuel pressure:	
At idle	210 - 260 kPa
With vacuum hose disconnected from regulator	250 - 300 kPa
Idle speed control valve resistance at 20°C	11 - 14 Ω
VSV resistance	refer to text
Oxygen sensor heater element resistance at 20°C:	
Early models	11.7 - 15.5 Ω
Late models	11.7 - 14.3 Ω
Coolant temperature sensor resistances:	
0°	5.88 kΩ
20°	2.21 - 2.69 kΩ
40°	1.14 kΩ
60°	0.58 kΩ
80°	0.29 - 0.35 kΩ
Intake air temperature sensor resistances:	
Early models —	
0°	10.3 - 8.15 kΩ

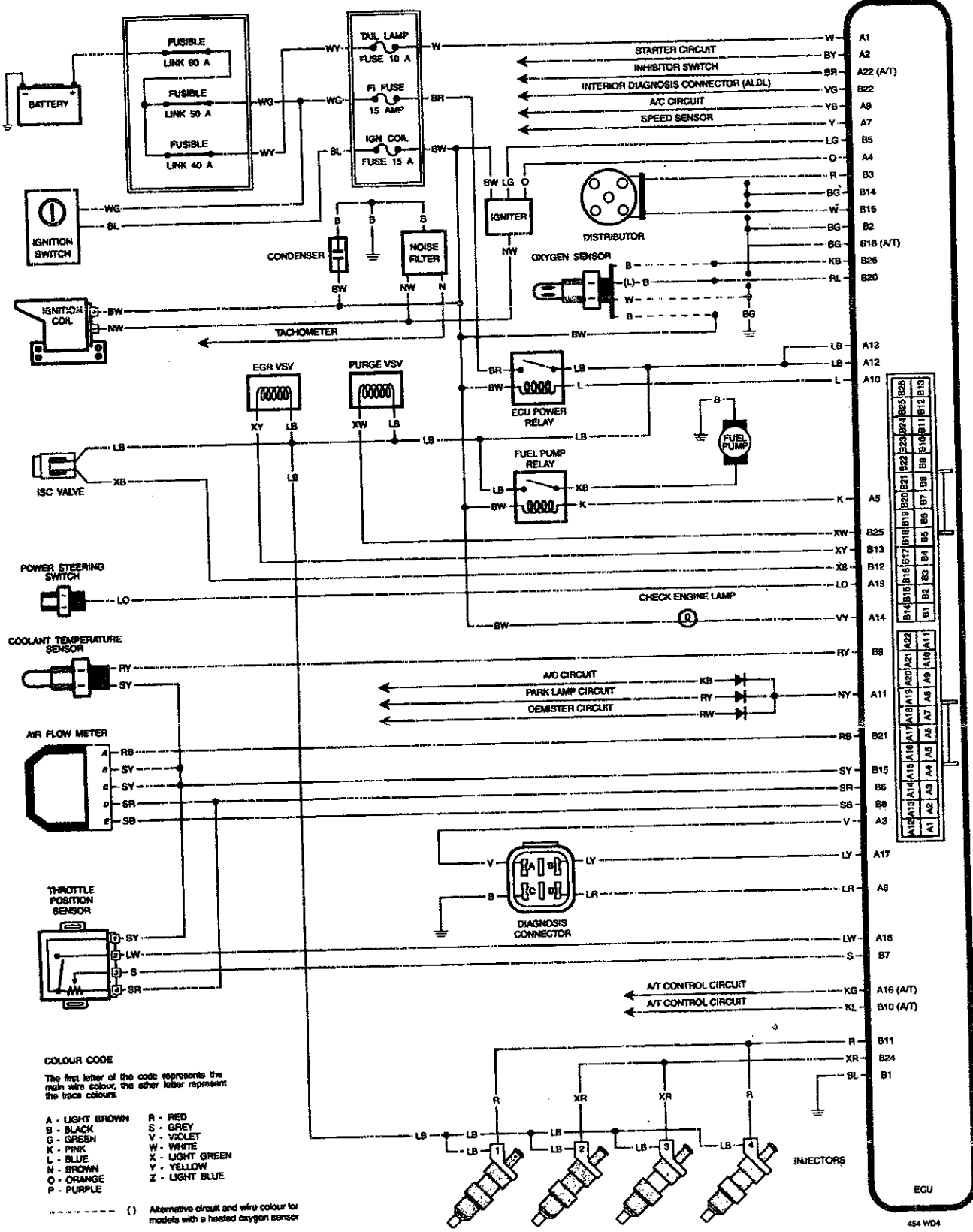
20°	2.21 – 2.69 kΩ
60°	0.50 – 0.66 kΩ
Late models —	
0°	5.4 – 6.6 kΩ
20°	2.28 – 2.87 kΩ
40°	1.06 – 1.36 kΩ
60°	0.53 – 0.70 kΩ
80°	0.29 – 0.39 kΩ
100°	0.16 – 0.23 kΩ
Injector resistance	12 – 17 Ω

ECU VOLTAGES

Early Models

Terminal A1, ECU constant power supply	Battery V
Terminal A2, cranking signal input:	
Ignition On	Approx 0 V
Engine cranking	Battery V
Terminal A4, ignition trigger signal:	
Ignition On	0 – 1 V
Engine cranking	Fluctuates between 0 – 5 V
Terminal A5, fuel pump relay control:	
For two seconds after switching	0 – 1 V
After two seconds from switching	0 – 1 V
Terminal A7, vehicle speed sensor:	
Ignition On, rotating rear propeller shaft slowly	Fluctuates between 0 – 5 V
Terminal A9, A/C control circuit:	
Ignition On:	
A/C Off	Battery V
A/C compressor engaged	Approx 0 V
Terminal A10, ECU relay, ignition On	Approx 0 V
Terminal A11, electrical load signal, ignition On:	
Park lamp, ventilation fan or demister Off	Approx 0 V
Park lamps, ventilation fan or demister On	Battery V
Terminal A12, ECU power supply:	
Ignition Off	Approx 0 V
Ignition On	Battery V
Terminal A13, ECU power supply:	
Ignition Off	Approx 0 V
Ignition On	Battery V
Terminal A14, check engine lamp, ignition On:	
Lamp Off	Battery V
Lamp On	Approx 0 V
Terminal A16, coolant temperature output for A/T ECU, ignition On:	

Engine temperature below 55°C	Approx 0 V
Engine temperature above 60°C	Battery V
Terminal A18, TPS idle switch, ignition On:	
Throttle closed	Approx 0 V
Throttle open	3 – 5 V
Terminal A19, power steering pressure switch:	
Engine running, steering wheel stationary	Battery V
Engine running, steering wheel turning	Approx 0 V
Terminal A22, A/T inhibitor switch signal:	
Ignition On, Park or Neutral selected	0 V
Ignition On, any other position selected	Battery V
Terminal B1, ECU earth	0 V
Terminal B2, ECU earth	0 V
Terminal B5, ignition fail safe signal:	
Ignition On	0 – 2 V
Engine cranking	Fluctuates between 0 – 5 V
Terminal B6, sensor power supply:	
Ignition On	4.75 – 5.25 V
Terminal B7, throttle position sensor signal:	
Ignition On, throttle fully closed	0.1 – 1 V
Ignition On, throttle full open	3.3 – 4.5 V
Terminal B8, air flow meter:	
Ignition On, air flow meter at rest	3.7 – 4.3 V
Ignition On, air flow meter inner core fully depressed	0.2 – 0.4 V
Terminal B9, coolant temperature sensor, at 80°C:	
Ignition On or engine running	0.4 – 0.6 V
Terminal B11, injector control (No 1 and 4):	
Ignition On	Battery V
Terminal B13, EGR VSV, ignition On	Battery V
Terminal B14, ECU earth	Approx 0 V
Terminal B15, sensor earth	Approx 0 V
Terminal B16, crank angle sensor earth	Approx 0 V
Terminal B18, ECU earth (A/T only)	Approx 0 V
Terminal B20, oxygen sensor:	
Engine running above 2 000 rpm at operating temperature	Fluctuates above and below 0.45 V
Terminal B21, intake air temperature sensor at 20°C:	
Ignition On	2.2 – 2.6 V
Terminal B24, injector control (No 2 and 3):	
Ignition On	Battery V
Terminal B25, canister purge VSV, ignition On	Battery V



COLOUR CODE
 The first letter of the code represents the main wire colour, the other letters represent the trace colours.

A - LIGHT BROWN	R - RED
B - BLACK	S - GREY
C - GREEN	V - VIOLET
K - PINK	W - WHITE
L - BLUE	X - LIGHT GREEN
N - BROWN	Y - YELLOW
O - ORANGE	Z - LIGHT BLUE
P - PURPLE	

(1) Alternative circuit and wire colour for models with a heated oxygen sensor

Suzuki Vitar — early models

